

LIVER BIOPSY IN GENERAL MEDICINE

Ten Years Experience

by

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THE taking of liver biopsy is too often confined to specialised units and is insufficiently used in general medical wards. This records experience of 100 cases in a general medical unit over a ten-year period and illustrates its value in diagnosis in that it may sometimes avoid prolonged investigation or even laparotomy. The technique described is now free from significant risk if some necessary precautions are taken.

TECHNIQUE

Patients should have a prothrombin index at least 70 per cent and it is desirable that their blood group be known. Norris, Singh and Moutuschi (1958) described the technique using the needle developed by Menghini (1957) and the general procedure was described by Sherlock (1963).

On the day previous to the procedure the patient receives vitamin K₁ (Konakion) 10 mg. by injection and one hour before operation diazepam (Valium) 10 mg. In most patients, some difficulty was encountered in penetrating the skin with the cutting needle of Menghini and it was found easier to cut through the skin with a small scalpel. The needle itself requires re-sharpening by the makers after 10 biopsies. A proper syringe with metal barrel and guard is employed to obtain adequate suction. The container for transmission of the specimen must be filled to the top with 10 per cent formalin so that the fragile tissue does not sustain trauma by shaking in transit. These practical points are not perhaps sufficiently emphasised by all workers.

RESULTS

These can be divided into groups where the biopsy provided a useful diagnosis, those revealing only normal liver tissue, those on which no diagnosis could be made and those in which the material was insufficient. These groups are summarised in Table I.

Biopsy material valuable

Diagnostic information was obtained in 55 cases and considering that the technique was without any complications the procedure appears justified. The problems solved saved much unnecessary investigation, hospital time and even laparotomy, and all without significant upset to the patient. The conditions diagnosed are enumerated in Table I and some conclusions can be drawn as to the disease process where biopsy was found of value.

TABLE I. *Biopsy Diagnoses*

MATERIAL VALUABLE (53)			
Liver Diseases			34
Cirrhosis			
Micronodular	8		
Macronodular	3		
With haemolytic anaemia (Banti)	1	14	
Haemochromatosis	1		
Cardiac	1		
Hepatitis			
Active (various stages)	10		
Focal necrosis	3	14	
Toxic (para-aminosalicylic acid)	1		
Obstructive			6
Carcinoma			14
Reticulosis			5
MATERIAL NOT OF DIRECT ASSISTANCE (47)			
Normal			36
Significance missed			1
Not diagnostic			4
Inadequate or fragmented tissue			6

Liver Disease. A diagnosis of the type of cirrhosis can often be made and the progress and complications anticipated. Various stages of activity in aggressive hepatitis can be assessed in conjunction with other tests as well as a specific diagnosis made. Limitations in the diagnosis of necroses or infections of the liver may be imposed since in many instances the patient is icteric and the prothrombin level too low to allow the biopsy to be performed without risk. However, when possible the procedure was of great help.

Carcinoma. Liver biopsy was extremely successful and established the diagnosis in advanced malignancy. Thus in 14 out of 16 instances the diagnosis of secondary deposits was confirmed preventing unnecessary investigation or laparotomy. An illustrative case may be quoted. A sea captain aged 46 who previously had been in good health had a sudden gastric haemorrhage at sea and was flown home from the Carribean. His liver was palpable and barium meal was negative. The liver biopsy showed carcinomatous metastases consistent with a gastric primary. His wife refused to accept the diagnosis and three months later, after a further haematemesis he was admitted elsewhere. He died after one week and various procedures, such as Wangensteen's tubes, eight pints of blood and numerous

investigations, failed to provide a diagnosis or afford relief. Autopsy confirmed the original diagnosis, a small primary being present in the stomach with secondary deposits in the liver obstructing the portal vein.

Reticulosis. The diagnosis was obtained for a colleague, a haematologist, in five patients out of eight where a reticulosis was suspected and in whom the diagnosis was not obtainable by bone marrow biopsy, blood or x-ray investigations.

Post Hepatic Obstruction. Surgical or obstructive jaundice was proven in six instances at an early stage in their investigation and the appropriate intervention undertaken saved both time and uncertainty. In one a culture of anaerobic streptococci led to the initiation of treatment with the correct antibiotic and a successful outcome. In another the diagnosis of cholangitis and biliary cirrhosis with ascites was confirmed six months later at autopsy.

Biopsy material reported as normal

In thirty-six patients the biopsy was reported as normal. It might seem that the procedure was not directly of clinical assistance. However, in retrospect the minimal risk involved was justifiable, and these cases are enumerated in Table II.

TABLE II. *Liver Biopsy Normal* – Total 36

Carcinoma	.	3
Reticulosis	.	3
Idiopathic Anaemia	.	4
Other Blood Disorders	.	2
Cardiac Disease + Hepatomegaly	.	7
Gallstones + Hepatomegaly	.	3
Portal + Splenic Vein Thrombosis	.	2
Hepatomegaly + Diabetes	.	1
Hepatomegaly + Alcoholism	.	1
Hepatomegaly + Abdominal Inflammation	.	2
Attempted Diagnosis of Obscure Conditions	.	5

Carcinoma. Two cases of gastric carcinoma were missed and three instances of carcinomatosis suspected were later proven at autopsy to be of bronchogenic origin. In all three patients biopsies were repeated with negative results. Against this failure the finding of a normal liver in a female with pelvic carcinoma was of help to the gynaecologist who treated the local condition with more confidence and with success by surgery.

Blood Diseases. Six patients with obscure anaemia or thrombocytopenia and polycythaemia were biopsied at the request of the haematologist. These were done as a last diagnostic resort. In three instances the patient later turned out to have reticulosis which was confirmed at post-mortem but missed by biopsy. This, however, must be weighed against the fact that five other patients with reticulosis were diagnosed by this means and treatment instituted.

Cardiac Disease. Biopsy was done on seven patients with what appeared to be a disproportionate enlargement of the liver in long standing cardiac failure due to various conditions. It helped to exclude other causes.

Gallstones. The finding of normal liver tissue in patients presenting with jaundice and later proven to have gallstones in three instances was useful in that it helped to exclude an intrahepatic cause and directed attention towards a correct diagnosis at an early stage.

Portal Vein Thrombosis. Two patients with haematemesis, including one with splenomegaly, had normal biopsies and were later proven at operation to have thrombosis in the splenic and portal veins. The procedure could not be expected to be helpful here.

Hepatomegaly and Alcoholism. A normal biopsy was in one instance a diagnostic failure in that the patient died later from haemorrhage associated with oesophageal varices in presumably a liver cirrhosis. The specimen obtained was poor and fragmented.

Palpable Liver and Diabetes. A normal biopsy was of help in the patient whose many symptoms were eventually found to be on a psychiatric basis and the liver condition proven to have no clinical significance.

Miscellaneous Conditions. Inflammatory abdominal conditions, such as diverticulitis with associated sub-phrenic abscess, tuberculosis, sarcoidosis and a peculiar illness with an erythema multiforme gave normal biopsies. These were performed in an attempt to reach a diagnosis but either there was no actual liver involvement or the biopsy needle did not make contact with the affected area.

Biopsy material abnormal but significance missed

Viewing one case in retrospect the reported presence of large amounts of glycogen in the liver cells might have suggested an islet cell tumour presenting with hypoglycaemic symptoms and hepatomegaly. At laparotomy the condition was malignant and associated with liver secondaries.

Inadequate or fragmented tissue

Six specimens were classified under this label (Table III). It should be stated that the pathologist gave a hint of some toxic condition in one, which showed foamy cytoplasm, later proven to be associated with tuberculous bone marrow, and in another suggested the possibility of a reticulosis, confirmed at autopsy.

TABLE III. *Results of Poor Technique* – Total 6

<i>Specimen</i>	<i>Suggestion in Report</i>	<i>Final Diagnosis</i>
Poor or Fragmented	Foamy Cytoplasm	T.B. Bone Marrow
„	Probable Reticulosis	Lymphosarcoma
„	—	Nodular Hyperplasia
„	No Abnormality	Portal Cirrhosis
Inadequate	—	Infectious Hepatitis
„	—	Portal Cirrhosis

SUMMARY

In a general medical unit the absence of complications and the help to diagnosis made liver biopsy in 100 selected patients well worthwhile.

Patients did not complain of discomfort during the procedure, and, when necessary, the rare request for repeat biopsy was met with favourable response from them. The absence of any complications in the series, regardless of age, sex or underlying pathology indicates the relative safety with which the investigation may be undertaken.

An adequate specimen in ninety-four cases and some indication of disease process in three poor specimens may well be considered a reasonable result for the occasional operator and provides encouragement for the procedure to be more widely adopted.

From the biopsy reports and ultimate outcome it is obvious that liver biopsy is of greater value when abnormal rather than when normal tissue is obtained. As a diagnostic aid it is more reliable in diseases which tend to involve the entire liver rather than those with a patchy distribution. However, in the present series a positive diagnosis was reached in 87 per cent of cases of carcinomatosis.

It still remains a diagnostic aid to be used with clinical discernment and not at random when diagnosis is difficult.

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